



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/632,293	08/01/2003	Sumio Kuroda	1100.68251	5077

7590 11/02/2004
Patrick G. Burns, Esq.
GREER, BURNS & CRAIN, LTD.
Suite 2500
300 South Wacker Dr.
Chicago, IL 60606

EXAMINER

MERCEDES, DISMERY E

ART UNIT PAPER NUMBER

2651

DATE MAILED: 11/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/632,293

Applicant(s)

KURODA ET AL.

Examiner

Dismery E Mercedes

Art Unit

2651

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 January 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 08/01/2003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on August 1, 2003 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

3. Claims 5-8 are rejected under 35 U.S.C. 102(a) as being anticipated by Ishida et al. (US 6,529,341 B1).

As to Claim 5, Ishida et al. discloses a magnetic recording medium comprising: a servo information pattern of preformat information patterns, which is recorded by magnetic transfer (col.3, line 63-col.4, line 6); and a transfer clock pattern synchronized with the servo information pattern (col. 4, lines 43-54 & col.9, lines 36-37 and as depicted in FIG.1).

As to Claim 6, Ishida et al. further discloses the magnetic recording medium according to base Claim 5, which has a circular form in a plan view, wherein the transfer clock pattern is recorded on an inner or outer periphery portion of the magnetic recording medium (col.10, lines 5-10).

As to Claims 7 & 8, Ishida et al. further discloses information is recorded by a perpendicular magnetic recording method (col.16, lines 30-35).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 1,9,10,15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida et al. (US 6,529,341 B1) in view of Yatsu (US 2004/005935 A1). Ishida et al. discloses a preformat method (col.8, lines 40-44) for a magnetic recording medium (col.3, line 55), for recording preformat information including servo information on a magnetic recording medium by a magnetic recording apparatus including a recording head (col.3, line 58), comprising steps of recording at least the servo information of the preformat information on the magnetic recording medium by magnetic transfer (col.3, line 63-col.4, line 6).

Ishida et al. does not explicitly teach recording preformat information excluding the servo information on the magnetic recording medium by the recording head.

However, Yatsu teaches recording preformat information excluding the servo information on the magnetic recording medium by the recording head (page 3, ¶0049-0050, line 3 & page 3-page 4, ¶0061). Therefore, it would have been obvious to one of ordinary skill in the art to modify Ishida's method by implementing Yatsu's technique because it would provide Ishida's method with the enhanced capability of identifying a track and positioning operation in the track, thus sufficient write accuracy of the servo pattern is secured (page 3, ¶0054 & page 4, ¶0068, lines 9-10 of Yatsu).

As to Claim 9, it is drawn to the apparatus of Claim 1 and is therefore rejected for the similar reasons set forth in the rejection of Claim 1, respectively.

As to Claims 10 & 15, Ishida et al. further shows the magnetic recording medium has a transfer clock pattern, which is synchronized with the servo information pattern, recorded thereon in advance by magnetic transfer (col. 4, lines 43-54 & col.9, lines 36-37 and as depicted in FIG.1), further comprising a phase synchronizing unit for synchronizing a phase of a clock of the recording head for recording information with a phase of a transfer clock obtained by reproducing the transfer clock pattern by the reproducing head (col.13, line 24-col14, line 50).

6. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida et al. (US 6,529,341 B1) in view of Yatsu (US 6,738,215 B2). Ishida et al. discloses a preformat method (col.8, lines 40-44) for a magnetic recording medium (col.3, line 55), for recording preformat information including servo information on a magnetic recording medium by a magnetic recording and reproducing apparatus (col.4, line 10) including a recording head (col.3, line 58) and reproducing head (col.3, line 60), comprising steps of recording at least the servo information of the preformat information on the magnetic recording medium by magnetic transfer (col.3, line 63-col.4, line 6); reproducing preformat information recorded by magnetic transfer (col.13, line 38-39); fining a pattern of the reproduced preformat information (col.8, lines 4-5).

Ishida et al. does not explicitly teach and recording the fined preformat information on the magnetic recording medium by the recording head.

However, However, Yatsu teaches recording preformat information excluding the servo information on the magnetic recording medium by the recording head (page 3, ¶0049-0050, line 3 & page 3-page 4, ¶0061). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Ishida's method by implementing

Yatsu's technique because it would provide Ishida's method with the enhanced capability of identifying a track and positioning operation in the track, thus sufficient write accuracy of the servo pattern is secured (page 3, ¶0054 & page 4, ¶0068, lines 9-10 of Yatsu).

7. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishida et al. (US 6,529,341 B1) in view of Yatsu et al. Ishida et al. discloses a preformat method (col.8, lines 40-44) for a magnetic recording medium (col.3, line 55), for recording preformat information including servo information on a magnetic recording medium by a magnetic recording and reproducing apparatus (col.4, line 10) including a recording head (col.3, line 58) and reproducing head (col.3, line 60), comprising steps of recording at least the servo information of the preformat information on the magnetic recording medium by magnetic transfer (col.3, line 63-col.4, line 6); recording a transfer clock pattern, which is synchronized with a pattern of the servo information, on the magnetic recording medium (as depicted in FIG.1, col. 4, lines 43-54 & col.9, lines 36-37). Ishida et al. fails to explicitly teach recording preformat information excluding the servo information on the magnetic recording medium by the recording head, as patterns synchronized with the transfer clock pattern.

However, However, Yatsu teaches recording preformat information excluding the servo information on the magnetic recording medium by the recording head (page 3, ¶0049-0050, line 3 & page 3-page 4, ¶0061). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Ishida's method by implementing Yatsu's technique, by recording the patterns synchronized with the transfer clock pattern with as taught by Ishida et al. with a recording head as taught by Yatsu, because it would provide Ishida's method with the enhanced capability of identifying a track and positioning

Art Unit: 2651

operation in the track, thus sufficient write accuracy of the servo pattern is secured (page 3, ¶0054 & page 4, ¶0068, lines 9-10 of Yatsu).

As to Claim 4, Ishida et al. discloses a preformat method (col.8, lines 40-44) for a magnetic recording medium (col.3, line 55), for recording preformat information including servo information on a magnetic recording medium by a magnetic recording and reproducing apparatus (col.4, line 10) including a recording head (col.3, line 58) and reproducing head (col.3, line 60), comprising steps of recording at least the servo information of the preformat information on the magnetic recording medium by magnetic transfer (col.3, line 63-col.4, line 6); reproducing preformat information recorded by magnetic transfer (col.13, line 38-39); fining a pattern of the reproduced preformat information (col.8, lines 4-5).

Ishida et al. does not explicitly teach and recording the fined preformat information on the magnetic recording medium by the recording head.

However, However, Yatsu teaches recording preformat information excluding the servo information on the magnetic recording medium by the recording head (page 3, ¶0049-0050, line 3 & page 3-page 4, ¶0061). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Ishida's method by implementing Yatsu's technique because it would provide Ishida's method with the enhanced capability of identifying a track and positioning operation in the track, thus sufficient write accuracy of the servo pattern is secured (page 3, ¶0054 & page 4, ¶0068, lines 9-10 of Yatsu).

8. Claims 11, 14, 16 & 19 are rejected as being unpatentable over Ishida et al. in view of Yatsu, further in view of Yamakoshi (US 6,381,292).

The teachings of Ishida et al. in view of Yatsu are incorporated herein. The combination of Ishida and Yatsu the magnetic recording and reproducing apparatus according to Claims 9,10,15, but failed to explicitly disclose a frequency multiplying unit for multiplying a frequency for recording information in a clock finer than the transfer clock.

However, Yamakoshi discloses a phase synchronizing apparatus, which includes a frequency multiplying unit (as depicted in FIG.4 & col.6, lines44-66). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a phase synchronizing circuit including frequency multiplier as taught by Yomakoshi, in the system of Ishida and Yatsu, because it would provide the system of Ishida and Yatsu with the enhanced capability of adjusting the signal to a desired predetermined amplitude (col.6, lines 44-45 of Yomakoshi).

9. Claims 12 &17 are rejected as being unpatentable over Ishida et al. in view of Yatsu, further in view of Tanaka et al. (US 5,680,267). The teachings of Ishida et al. in view of Yatsu are incorporated herein.

The combination fails to disclose a phase difference detecting unit for detecting a phase difference between a transfer clock which is obtained by reproducing the transfer clock pattern by the reproducing head and a write-once clock which is recorded by the recording head.

However, Tanaka et al. discloses such on (col. 7, lines 63-col.8, line 4). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use a phase difference detecting unit as taught by Tanaka et al. on the magnetic recording reproducing apparatus as taught by Ishida and Yatsu, because it provide the system with the enhanced capability of synchronizing the phase lock loop clock of the phase lock loop circuit

Art Unit: 2651

in a series of sequences, thus allowing the phase to be pulled up quickly into the locked stage. In addition it allows reducing the time of the shift time to the synchronization state (col.9, lines 51-59 of Tanaka et al.).

10. Claim 18 is rejected as being unpatentable over Ishida et al. in view of Yatsu and Tanaka as applied to claim 17, further in view of Yamakoshi (US 6,381,292).

The teachings of Ishida et al. in view of Yatsu and Tanaka are incorporated herein. The combination of Ishida, Yatsu and Tanaka teaches the magnetic recording and reproducing apparatus according to Claim 17, but failed to explicitly disclose a frequency multiplying unit for multiplying a frequency for recording information in a clock finer than the transfer clock.

However, Yamakoshi discloses a phase synchronizing apparatus, which includes a frequency multiplying unit (as depicted in FIG.4 & col.6, lines44-66). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a phase synchronizing circuit including frequency multiplier as taught by Yomakoshi, in the system of Ishida and Yatsu, because it would provide the system of Ishida and Yatsu with the enhanced capability of adjusting the signal to a desired predetermined amplitude (col.6, lines 44-45 of Yomakoshi).

11. Claim13 is rejected as being unpatentable over Ishida et al. in view of Yatsu, further in view of Tanaka et al. (US 5,680,267), further in view of Yomakoshi (US 6,381,292).

The teachings of Ishida et al. in view of Yatsu and Tanaka et al. are incorporated herein. The combination disclosed a magnetic recording and reproducing apparatus

Art Unit: 2651

according to claim 12, but failed to explicitly disclose a frequency multiplying unit for multiplying a frequency for recording information in a clock finer than the transfer clock.

However, Yamakoshi discloses a phase synchronizing apparatus, which includes a frequency multiplying unit (as depicted in FIG.4 & col.6, lines44-66). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a phase synchronizing circuit including frequency multiplier as taught by Yomakoshi, in the system of Ishida and Yatsu, because it would provide the system of Ishida and Yatsu with the enhanced capability of adjusting the signal to a desired predetermined amplitude (col.6, lines 44-45 of Yomakoshi).

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Yatsu (US 6,738,215 B2) cited for disclosing a method and system for accurate self servo writing by using relative position between head and writing surface.

Yatsu (US 2002/0135927 A1) cited for disclosing a magnetic disk drive apparatus having a self servo writing system and method for writing servo pattern herein.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dismery E Mercedes whose telephone number is 703-306-4082. The examiner can normally be reached on Monday - Friday, from 9:00am - 4:00pm.

Art Unit: 2651

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on 703-305-4040. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dismery E Mercedes
Examiner
Art Unit 2651



W. R. YOUNG
PRIMARY EXAMINER

DM

DM 11/1/04